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## EFFECT OF VARIOUS AMOUNTS OF SODIUM FLUORIDE ON THE TEETH OF WHITE RATS

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In a previous publication (1), the present authors reviewed the literature on the effect of fluorine on the teeth of white rats, and both DeEds (2) and McClure (3) have recently made extensive reviews of the literature on the toxic effects of fluorine. It seems unnecessary, therefore, at this time to refer again in detail to the literature.

In our previous report, the changes produced in rats' teeth by 150 p.p.m.<sup>1</sup> and 500 p.p.m. of sodium fluoride in the drinking water were described. The purpose of the present experiments was to determine the smallest quantity of sodium fluoride in the drinking water which would produce visible changes in the teeth of white rats under similar conditions, and to observe the changes in the teeth produced by various amounts of fluorine. Accordingly, a group of young rats (55 to 60 grams in weight) was divided into six lots. The rats were placed in individual metal cages having screen bottoms and were fed our diet 411, the composition of which is given in table 1.

TABLE 1.—Composition of diet 411

Ingredients	Percent by weight	Ingredients	Percent by weight
Casein, leached.....	20	Dried brewers' yeast.....	5
Cottonseed oil.....	3	Corn starch.....	66
Cod-liver oil.....	2	Salt mixture (O. & M.) <sup>1</sup> .....	4

<sup>1</sup> Prepared according to Osborne and Mendel, *Jour. Biol. Chem.*, vol. 37, p. 572 (1919).

The amounts of sodium fluoride in the drinking water and the results are summarized in table 2.

<sup>1</sup> Parts per million.

TABLE 2.—Changes in the teeth of rats on diet 411 with various amounts of sodium fluoride in the drinking water

Lot no.	Number of rats	Amount of NaF in drinking water (p.p.m.)	Changes in labial surface of lower incisors
1146.....	4	None	None.
1156.....	4	50	Very fine brown striations; seen best with hand lens.
1144.....	4	75	Fine brown striations.
1143.....	4	100	Do.
1147.....	2	150	Brown striations later changing to irregular brown patches.
1163.....	4	300	Loss of pigment; brittle; no brown striations.

The group (lot 1156) receiving the smallest amount of sodium fluoride in the drinking water (50 p.p.m.) began to show changes in the teeth 28 days from the beginning of the experiment. At this time, very fine, closely spaced, brown striations could be made out with a hand lens on the gingival third of the lower incisors. These striations were so fine that they could not be seen with the naked eye, except with the very best illumination. The striations involved progressively the entire labial surface of the lower incisors, but were so fine and so closely spaced that they were visible only on careful observation. The 4 rats in each of the groups (lots 1144 and 1143) which were given 75 p.p.m. and 100 p.p.m. of sodium fluoride in the drinking water showed the brown striations, which had covered the entire labial surface of the incisors within 56 days from the beginning of the experiment. These striations were more readily seen than those in the rats given 50 p.p.m. and tended to become irregular patches similar to those seen in the rats receiving 150 p.p.m. of sodium fluoride, but in a lesser degree.

The results with 150 p.p.m. (lot 1147) confirm our previous results. Twenty-one days from the beginning of the experiment it was noted that the lower incisors were somewhat lighter in color than the teeth of the control rats, and by the 28th day fine brown striations were visible on the gingival third of the lower incisors, which extended to and covered the entire labial surface of the teeth by the 35th day, and the color of the teeth had changed from the normal orange-brown to a cream color. The fine, brown, concentric striations gradually became larger and irregular, and the teeth were finally covered by irregular brown patches.

In our previous experiments (1) it was noted that, of the rats given drinking water containing 500 p.p.m. of sodium fluoride, a number died, and the survivors had white, chalky, brittle incisors which fractured readily and did not show any of the brown striations noted in the group given 150 p.p.m. of sodium fluoride. Therefore, a group (lot 1163) was given a drinking water containing 300 p.p.m. of sodium fluoride to determine the effect of an intermediate quantity. On this

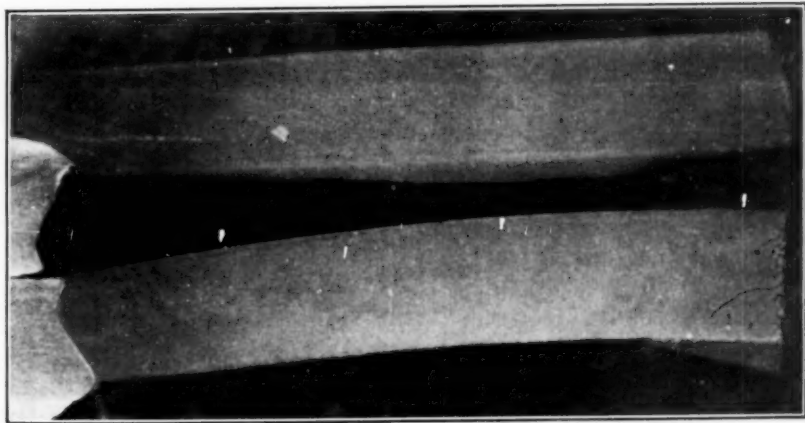


FIGURE 1.—Normal lower incisors of control rat 5996, lot 1146, on diet 411 with distilled drinking water.

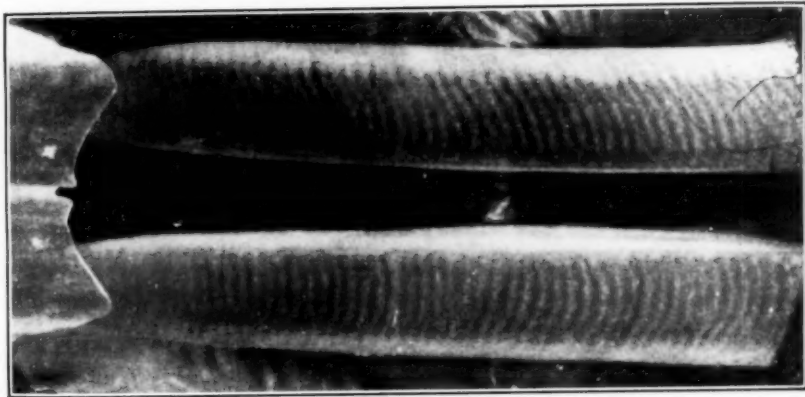


FIGURE 2.—Lower incisors of rat 5954, lot 1156, on diet 411 with 50 p.p.m. NaF in drinking water. Teeth show fine, regular, brown striations.

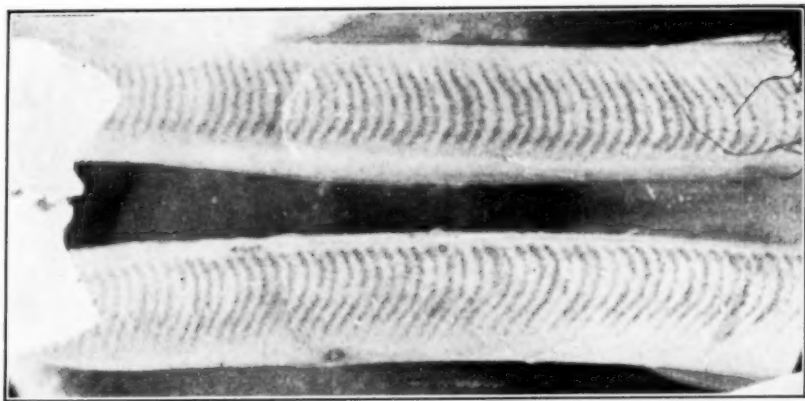


FIGURE 3.—Lower incisors of rat 5689, lot 1144, on diet 411 with 75 p.p.m. NaF in drinking water. Fine, brown striations slightly more prominent than those shown in fig. 2.



FIGURE 4.—Lower incisors of rat 5809, lot 1147, on diet 411 with 150 p.p.m. NaF in drinking water. Teeth white; brown striations broken and irregular.



FIGURE 5.—Lower incisors of rat 6201, lot 1199, on diet 411-A with 500 p.p.m. NaF in drinking water. Teeth white; tips broken; enamel fractured; no evidence of brown striations.

dosage, none of the experimental animals died. Ten days from the beginning of the experiment the lower incisors of all of these rats showed beginning loss of pigment on the gingival third, which followed progressively the tooth growth, and within 20 days the entire labial surface of the incisors was yellowish-white in color. Within 45 days the lower incisors of all rats showed fractured tips. There was no evidence of the brown striations seen with the smaller quantities of fluorine, nor did the teeth appear to be as chalky and brittle as those of the rats receiving 500 p.p.m. of sodium fluoride.

When it was seen that as little as 50 p.p.m. of sodium fluoride produced gross changes in the teeth, it was felt that the small amount of sodium fluoride used in the preparation of the Osborne and Mendel salt mixture (approximately 10 p.p.m. of fluorine in the diet) might be influencing the results. Therefore, a new series of young white rats (weighing 55-60 grams) were fed diet 411-A, which is identical with diet 411 (table 1) except that no sodium fluoride was used in the preparation of the Osborne-Mendel salt mixture. In addition to a control lot on distilled water, three other lots of rats were given drinking water containing 25, 50, and 500 p.p.m. of sodium fluoride, respectively. The results are summarized in table 3.

TABLE 3.—*Changes in the teeth of rats on diet 411-A<sup>1</sup> with various amounts of sodium fluoride in the drinking water*

Lot no.	Number of rats	Amount of NaF in drinking water (p.p.m.)	Changes in labial surface of lower incisors
1181.....	4	None.	None.
1184.....	4	25	Exceedingly fine brown striations clearly visible only with hand lens.
1182.....	4	50	Very fine brown striations best seen with hand lens.
1199.....	4	500	White, chalky, brittle hypoplastic enamel.

<sup>1</sup> No sodium fluoride in Osborne-Mendel salt mixture.

Changes in the teeth of the rats (lot 1184) receiving 25 p.p.m. of sodium fluoride in the drinking water were first noted 23 days from the beginning of the experiment. In the sunlight, with the aid of a hand lens, exceedingly minute, brown striations could be made out on the labial surface of the lower incisors. No such changes could be seen at any time on the teeth of the control rats (lot 1181) on distilled water.

The rats (lots 1182 and 1199) on 50 p.p.m. and 500 p.p.m. of sodium fluoride in the drinking water showed changes in the teeth similar to the changes previously noted in rats on diet 411 with the same amount of sodium fluoride in the drinking water.



## FLUOROSIS AND CALCIUM METABOLISM

The possibility that fluorosis may bear a relationship to calcium metabolism may be implied from the work of Bergara (4), Chaneles (5), Smith, Lantz, and Smith (6), McClure and Mitchell (7), and indirectly by Pierle (8). DeEds (2) states that "a low calcium intake hastens the onset and development of chronic fluorine intoxication, whereas a liberal calcium intake tends to offset the effects of fluorine \* \* \*." McClure and Mitchell (7) concluded that "the calcium balance of the rats was not affected by either sodium fluoride or calcium fluoride at levels of 0.0106 percent and 0.0313 percent fluorine in the ration. The results indicate, with a probability equal to a practical certainty, that a level of 0.0623 percent of fluorine in the form of either calcium fluoride or sodium fluoride, lowered the percentage of calcium that otherwise would have been retained by the experimental rats."

Smith and Lantz (9) state that "when sodium fluoride was incorporated in the ration at the level of 0.05 percent, the analyses of teeth and bones showed no significant alterations in the percentage of ash, calcium, or phosphorus, or in the calcium to phosphorus ratio. When the concentration of sodium fluoride was increased to 0.1 percent of the ration, the teeth and bones were lower in ash content but contained a greater percentage of calcium, lower percentage of phosphorus, with a higher calcium to phosphorus ratio."

Hauck, Steenbock, and Parsons (10) (11), in a series of experiments in fluorine toxicosis with 1,500 p.p.m. of sodium fluoride incorporated into varying diets, conclude that "it is evident that the Ca content of the diet is an important factor in determining the effect on body growth, maintenance, and the ash content of the bone and teeth."

Such changes in calcium balance, however, as have been noted by these investigators (7) (9) (10) (11) were observed in experiments wherein the fluoride dosage was in excess of the maximum amount used in our series.

The pigmented incisors of the white rat are very sensitive indicators of fluorosis. Our experiments indicate that a dosage as low as 25 p.p.m. of sodium fluoride in the drinking water results in a definite sign; namely, exceedingly fine, brown striations. With this in view, a series of four lots of rats were placed on diet 411-B, which is identical with diet 411 except that 5 percent calcium carbonate is added and the corn starch correspondingly reduced. Three of the lots (1193, 1192, and 1185) were given 50, 150, and 500 p.p.m. of sodium fluoride, respectively, in the drinking water; one lot (1191) was given distilled drinking water. The results are summarized in table 4.

TABLE 4.—Changes in the teeth of rats on diet 411-B<sup>1</sup> with various amounts of sodium fluoride in the drinking water

Lot no.	Number of rats	Amount of NaF in drinking water (p.p.m.)	Changes in labial surface of lower incisors
1191.....	4	None.	None.
1193.....	4	50	Very fine brown striations best seen with hand lens.
1192.....	4	150	Brown striations later becoming irregular.
1185.....	4	500	White, chalky, brittle hypoplastic enamel.

<sup>1</sup> 5 percent calcium carbonate in diet.

The changes in the teeth in each case were similar to the changes seen in the rats receiving the same quantity of sodium fluoride in the water without the excess calcium in the diet. It would appear, therefore, that under the conditions of the experiment the excess calcium in the diet had no appreciable effect on the gross changes produced in the teeth by sodium fluoride in the drinking water.

In view of the fact that our experiments with 500 p.p.m. of sodium fluoride in the drinking water indicated a toxic effect greater than that reported by other workers using larger amounts of sodium fluoride in the diet, a group of 4 rats was placed on a diet identical with that used in our experiments with sodium fluoride in the drinking water (diet 411) except that a solution of sodium fluoride was evaporated on the corn starch to give a final quantity of 500 p.p.m. of sodium fluoride in the diet (411-D). The animals in this lot (1189) were given distilled drinking water. The rate of growth of these animals in comparison with a similar group on diet 411-A and 500 p.p.m. of sodium fluoride in the drinking water is given in chart 1.

In addition, the changes in the teeth of the group on 500 p.p.m. of sodium fluoride in the diet were not as severe as those noted in the group receiving the 500 p.p.m. of sodium fluoride in the drinking water. These results therefore indicate that a given concentration of sodium fluoride in the drinking water produced a more toxic reaction than the same concentration of sodium fluoride in the diet. Whether this result is due to differences in the total quantity of sodium fluoride ingested, to more complete absorption, to a more rapid rate of absorption, or to other factors has not been definitely determined.

#### SUMMARY

As little as 25 p.p.m. of sodium fluoride in the drinking water of white rats produces changes in the teeth which are manifested by minute, transverse, brown striations. These striations become more pronounced as the quantity of sodium fluoride in the water is increased to 50, 75, and 100 p.p.m., respectively. When 150 p.p.m. is used, the striations lose their uniformity and become irregular brown patches.

If 300 p.p.m. of sodium fluoride is used, the teeth become creamy in color, tend to fracture, and no striations are seen. If 500 p.p.m. is used, some of the animals die and the teeth of the survivors become white, chalky, and very brittle.

The addition of 5 percent of calcium carbonate to the diet failed to cause any appreciable change in the gross appearance of the teeth of rats on 50, 150, and 500 p.p.m. of sodium fluoride, respectively, in the drinking water.

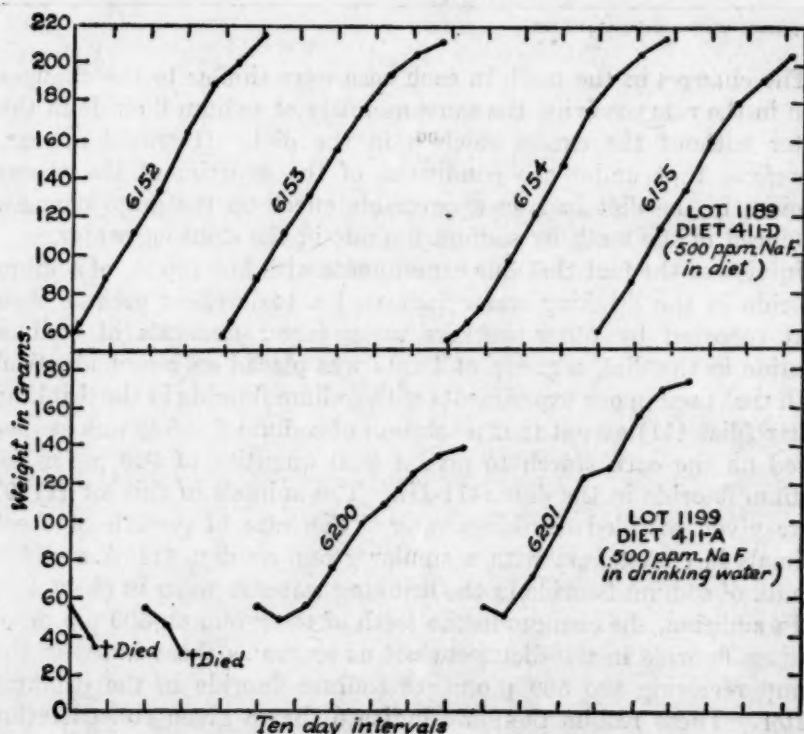


CHART 1.—Comparison of rate of growth of rats given 500 p.p.m. NaF in the diet with the rate of growth of those given the same amount of NaF in drinking water.

Five hundred p.p.m. of sodium fluoride in the drinking water produced a relatively greater toxicity than 500 p.p.m. of sodium fluoride in the diet under the conditions of these experiments.

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### SOME FINDINGS OF THE N.O.P.H.N. SURVEY OF PUBLIC HEALTH NURSING OF SIGNIFICANCE TO STATE HEALTH ADMINISTRATORS<sup>1</sup>

By PEARL McIVER, *Associate Public Health Nursing Analyst, United States Public Health Service*

The public health nursing movement in the United States is approximately 50 years old. When the National Organization for Public Health Nursing was founded in 1912, there were only about 3,000 public health nurses in the whole United States. Today there are approximately 20,000 public health nurses and more than 5,000 organizations, both official and nonofficial, in the United States which employ public health nurses.

Public health nursing has made such a rapid growth during the past 20 years that it seemed wise to take stock of its progress and development and to find out just where it stands today. Consequently, through the generosity of the Commonwealth Fund, the National Organization for Public Health Nursing undertook a survey of a cross section of public health nursing, taking into account the principal geographical divisions of the country and the various types of agencies which employ public health nurses. The findings and conclusions from this survey have just recently been published in book form<sup>2</sup> by the Commonwealth Fund, New York City, and they contain much

<sup>1</sup> Presented at the Thirty-second Annual Conference of State and Territorial Health Officers with the United States Public Health Service, Washington, D.C., June 8, 1934.

<sup>2</sup> A survey of public health nursing. The Commonwealth Fund, New York City, 1934.

information which is of interest and importance to health administrators. The findings of this survey may be roughly divided into—

1. Extent and distribution of public health nursing services.
2. Organization and administration.
3. Nursing programs.
4. Quality of the performance.

The results of the survey are not wholly flattering to public health nursing; and because of this, the survey was disappointing to certain groups of nurses. However, most of us are encouraged, not because of the weaknesses in public health nursing which are disclosed by the survey, but because it points the way to improvement. Knowing one's own weaknesses is the first step toward improvement, provided that a conscientious effort is made to remedy the conditions which are responsible for the deficiencies.

#### EXTENT AND DISTRIBUTION OF PUBLIC HEALTH NURSING SERVICE

As previously stated, there are approximately 20,000 public health nurses in the United States to serve a population of about 126,000,000. If the nurses were distributed evenly over the country, that would mean less than 1 nurse to every 6,000 persons. However, we know that large groups of our rural population have no public health nursing service at all. According to the study of rural health work,<sup>3</sup> made under the auspices of the Committee on Administrative Practice of the American Public Health Association, there is an average of one nurse to every 20,000 population in the counties having organized county health departments, but only about one-sixth of the counties of the United States have county health departments. According to the survey of the National Organization for Public Health Nursing, in which urban areas predominated, it was found that the most frequent ratio of population per nurse was approximately 4,000.

It is quite evident that the distribution of nursing service is as uneven and out of proportion as the present distribution of material commodities. The difference, however, lies in the fact that there is a large surplus of material commodities in many areas of the country, while in the public health nursing service very few communities have anything like an adequate number of public health nurses to meet their needs. It has been suggested repeatedly<sup>4</sup> that there should be 1 public health nurse to every 2,000 population. On that basis, the rural population of the United States (which in 1930 was approximately 53,820,000) could absorb the entire public health nursing personnel now employed in both urban and rural areas!

<sup>3</sup> Freeman, Allen W.: *Rural public health practice*, p. 67. The Commonwealth Fund, New York City, 1933.

<sup>4</sup> *Community Health Organization*, p. 155. By Ira V. Hiscock. Commonwealth Fund, New York City, 1932.

Population basis alone does not appear to be an adequate criterion for determining the amount of nursing service needed. The size of the area to be covered, the transportation facilities available, and the special public health problems prevalent within the area must also be taken into consideration. However, considering all of these, it is quite evident that there is need for a considerable increase in the number of public health nurses assigned to rural areas especially.

#### ORGANIZATION AND ADMINISTRATION

Public health nursing service was initiated and largely developed by nonofficial nursing agencies. However, the survey shows that the present tendency is toward official control of the public health nursing services. Of the agencies included in the survey, 37 percent were nonofficial and the remaining 63 percent were official agencies divided equally between boards of education and departments of health. While there were more nonofficial agencies employing nurses than there were departments of health with nursing personnel among the agencies included in the survey, the number of nurses employed by departments of health was considerably larger than the number employed by nonofficial agencies or by boards of education.

The Committee on Studies and Administrative Practice of the National Organization for Public Health Nursing recommends, as a result of this survey, that there be not more than two agencies administering public health nursing in any community—one under official direction, and the other concerned primarily with the giving of nursing care to the sick. In rural and small urban areas the committee recommends that there be but one agency responsible for all public health nursing service.

Of those agencies included in the survey of the National Organization for Public Health Nursing, none of the official agencies had an advisory council or committee concerned primarily with public health nursing. In 1926 a joint committee was appointed by the Health Officers' and Public Health Nursing Sections of the American Public Health Association to study the advisability of having such committees. At the annual meeting of the association in Cincinnati in 1927, the committee gave its report and strongly urged that every official nursing group have the advice and support of a lay advisory committee or council. This report was accepted by both of the previously mentioned sections of the American Public Health Association<sup>1</sup> at that meeting.

The value of such a group, not only to the nursing service, but to the entire health department, has been demonstrated over and over again. In upholding standards, in securing increased appropriations, or in preventing a reduction in the appropriation, and in creating

<sup>1</sup> American Journal of Public Health, December 1927, p. 1239.

public approval for new projects, a committee of interested citizens, which has been officially designated as a public health committee, is a potent factor. To me it is immaterial whether the council or committee be concerned primarily with nursing. Personally, I prefer a general health committee to which all health problems are referred for suggestions and to which any of the personnel of the health department may be invited to present their problems.

While such a committee is of inestimable value to local health departments, the same principle applies to the State health departments. Several States already have State-wide advisory nursing councils. I am inclined to feel that the combined council is best for State health departments also, especially for those States which are primarily rural. In Missouri we had a State Child Health Council which met annually, usually at the time of the Annual Public Health meeting. While this group was called a "Child Health Council," it would have been more accurate to have called it a "Public Health Council", because all of the State health department division heads attended the meetings and problems of sanitation, communicable disease control, vital statistics, and public health nursing were taken up as frequently and as fully as were the problems incident to child health.

The survey shows us that we have not made much progress in making this practice universal and that we should put considerably more emphasis upon advisory councils and committees in the future. Encouragement and leadership from the State health administrators will do much toward making this practice universal both for local and for State health departments.

The survey substantiated the opinions which many of us have long held in regard to records and reports. The committee found that there was little uniformity in the records used by the various agencies. Extremely few agencies had records which gave an adequate picture of the service, and which were *used* and not merely *kept* by the staff. Work worth doing is worth recording, and a record should be of more value to the one who makes it than to any one else. When one studies the record and report forms that are supplied by some of the State health departments, one does not wonder that they are not used by the staff. Instead of being labor-saving tools, they are time-consuming mechanisms, the value of which is seldom apparent to the ones who keep them. The preparation of an adequate record system for any State is a job for experts and one which requires a great amount of time, thought, and experimentation. No record form should be printed until it has *actually* been tried out in the field and found to be workable, and then it should be accompanied by detailed definitions and instructions.



The qualifications of the nursing personnel are another problem which was very strikingly brought out by the survey. Only about 30 percent of the field or staff nurses employed by the agencies included in this survey had had any theoretical preparation for public health nursing work, and only 7 percent of them had completed an approved public health nursing course. It might be argued that special theoretical preparation for public health nursing work is not essential if the nurses are under the supervision of adequately prepared public health nurses. However, the survey shows that approximately 23 percent of the agencies provided no nursing supervision and that, when supervisors were provided, quite frequently their preparation was far from satisfactory according to generally accepted standards. Eleven, or approximately 19 percent, of the 57 agencies included in the survey had no stated requirements for appointment of nurses to the staff. Approximately 23 percent of the agencies required some experience or theoretical training in public health nursing in addition to registration as a graduate nurse, but most of the others merely required "registration." That is a rather discouraging picture of the qualifications of public health nurses in a country which has as many opportunities for nursing education as has the United States.

#### NURSING PROGRAMS

A generalized nursing program is one in which one nurse renders all of the various types of public health nursing service which are offered by her agency to the people within a certain geographical area. A specialized nursing program is one in which certain nurses do communicable disease work; others, infant and maternity hygiene; still others, school nursing, etc. If one excludes the boards of education (which always maintain a specialized service) from the agencies included in the survey, it will be found that all of the non-official agencies and approximately 55 percent of the departments of health had generalized nursing programs. A generalized nursing program is considered to be the most economical and effective type of nursing program, because it eliminates travel time and it permits the nurse to study the family as a unit and to consider each individual in relation to the whole family situation.

In addition, it has been found that the family usually prefers having but one nurse visiting the home and concerned with its problems. Rural health administrators are usually fairly well convinced as to the superiority of a generalized program as it applies to local services. However, I believe the generalized theory could be extended to State health department nursing services equally as well. Instead of having field nurses or field supervisors who are concerned with but one phase of the health program, why not have well-prepared public health nurses who are capable of handling any nursing program which may



arise within their districts? This will require nurses who have had a broad and thorough preparation for their jobs, but it should bring the same improvement to State public health nursing services which it has brought to local services.

#### QUALITY OF PERFORMANCE

To determine quality of performance is a most difficult job. The plan worked out by the survey committee was as follows:

The surveyors made approximately 900 visits to homes and schools with the nurses who were employed by the agencies included in the survey. In the smaller agencies, visits were made with every nurse on the staff. In the larger agencies, nurses from the staff were selected at random and a sufficient number were selected to make possible the securing of a representative picture of the work of that agency. Detailed narrative accounts were written following each visit. The narratives were numbered and all other identifying data removed. Then each visit was rated independently by 3 experienced public health nurses on the following 4 points:

1. *Approach*.—The relationship of the nurse to the people she serves, her ability to adapt to different situations and to different types of people.

2. *Technique*.—The nurses' understanding of the fundamental principles underlying her technique, how habitual her technique appeared to be, and whether she was able to adapt it to fit the situation.

3. *Teaching*.—Evidence of direct or indirect teaching of health principles. Were opportunities utilized? Was her instruction accurate? Was her instruction suited to the needs of those instructed?

4. *Adequacy of care*.—Was there evidence that the nurse had done for the patient or family as much as was indicated on that particular visit?

The ratings of each of the three readers were averaged to obtain a performance score for that visit. The scores made on all visits by a certain agency were averaged to get a performance score for that agency, and finally the scores of all agencies of a certain type were averaged to obtain a performance score for that general type of agency.

By this method it was found that the performance scores of the nonofficial public health nursing agencies were highest, the departments of health were second, and the boards of education were lowest. When these scores were compared with the amount and the quality of nursing supervision which was provided, it was found that there was a direct relationship between the amount and quality of the supervision provided and the quality of the performance of the nurses in the various agencies. It was found that nonofficial agencies generally provided better nursing supervision and a better staff education program than did departments of health, and that departments of health provided better nursing supervision than did boards of education.

Scores were also obtained for the nursing performance in the seven types of service most frequently performed. According to quality of performance, these seven services rank as follows:

1. Prenatal care.
2. Nursing care of the sick.
3. Postpartum and neonatal care.
4. Health supervision of infants.
5. Disease prevention, including tuberculosis, acute communicable disease and venereal-disease control.
6. Health supervision of preschool children.
7. Health supervision of school children.

These findings are a bit disconcerting when we consider that the supposedly distinctive feature of public health nursing is health teaching and health supervision. However, it correlates very well with the preparation of the nurses who are doing the work. Their basic training taught them to give nursing care, and therefore they did that phase of the work best. It did not prepare them to teach health, neither did it give them very much experience in the care of communicable diseases. Consequently, the health supervision and the communicable disease services rank the lowest. It is apparent that the usual type of public health program requires the nurse to do that for which she is not well prepared and restricts her efforts along the line for which she is best prepared to render efficient service.

The ratings given each visit on approach, technique, teaching, and adequacy of care were also averaged to obtain "criterion scores", or scores for each of these four factors. For all types of agencies and for all services, approach was rated highest. Technique came second for the nonofficial agencies and departments of health, but third for boards of education. However, teaching was rated lowest in every type of agency and for every type of service. This was another severe blow to those of us who have considered the teaching ability of the nurse her greatest asset. Apparently she has the entrée to the homes, but she does now know how to make the most of the situation while there.

#### POINTS TO BE CONSIDERED IN PLANNING STATE PUBLIC HEALTH NURSING PROGRAMS IN THE LIGHT OF THESE FINDINGS

1. This survey appears to point the way toward fewer public health nursing agencies in the future, perhaps never more than 2 (1 official and 1 nonofficial concerned primarily with bedside care of the sick) in urban areas, and preferably but 1 in rural districts. If the official agency is to be the one agency in rural districts, the nursing program of the rural health department may have to be increased in scope in order to meet the needs. In the future, rural people as well as city people are going to insist upon having adequate

nursing care, especially for maternity cases and in cases of severe illness. The day of the private duty nurse is fast disappearing, even in the cities, and it never was a very important factor in rural medical care. We may look forward to the day when we shall have more nurses attached to our rural health departments, smaller districts for each nurse to cover, and each nurse responsible for supervising the nursing care of all cases which properly come under the jurisdiction of the county authorities within her district.

2. If adequate public support is to be obtained for the employment of a sufficient number of public health nurses, there must be an organized group of interested laymen acquainted with the problems which must be met by the health department, appreciative of the service which is being rendered, and sympathetic to the future plans and policies which are to be developed. This can best be accomplished by organizing public health councils and committees to function in an advisory capacity for both local and State health departments.

3. Since the quality of the service rendered appears to be positively correlated with the preparation of the nurse for her job, State health departments should define clearly the qualifications to be required of nurses who are to be appointed to public health nursing positions, and maintain a certified list of nurses from which local health administrators may select nurses for their units. In several States the authority to define these requirements is vested in the State health department through legislative action. However, it is not necessary to wait for such action in setting up standards for those agencies which are accepting subsidies from the State health department and have, by their acceptance, signified their desire to cooperate with the State health department in improving the quality of the service.

4. It was found through the survey that the quality of nursing performance and the amount and quality of the nursing supervision which was provided were positively correlated. Many State health departments should furnish more and a better quality of nursing consultation or supervision service to local health departments. It is immaterial whether this service be designated as a supervisory, an advisory, or a consultation service, provided that the persons rendering this service have the same qualifications. These supervisors must be well qualified nurses, must have a "super" or a broader vision of the whole public health nursing field, and must have the ability to inspire better performance on the part of those supervised or advised. With supervisors of that caliber who, in addition, understand that a satisfactory relationship with the local public health nurses must be developed through and with the local health officer, improvement in the quality of the nursing service should be expected.

5. State health departments should develop and furnish a complete system of public health nursing record forms for use in local health departments and should furnish a manual of instructions so that all items will be clearly understood and will be interpreted the same by all workers. In addition, when new record forms are being planned, experimental forms should be tried out by nurses (if the forms are to be used by nurses) to see whether they are workable and not too time-consuming. Here again the field supervisor may be of inestimable help to the local health officer in actually teaching the nurses how to use records as labor-saving tools and thus helping them to improve the quality of their service.

6. State health departments should make definite plans for staff education programs for local personnel. Nurses are not the only members of the county health department staff who should be continually learning. Health officers, sanitary officers, and clerks need this stimulation too, and, I believe, there is some advantage in the district staff conference where all the personnel of the surrounding health departments come together once every quarter or more frequently for discussion and study. Each group has its own problems and therefore needs special round table discussions; but a general conference of the entire staff before the group meetings begin helps to establish rapport and gives the State health administrator or director of local health work an opportunity to explain general policies which may concern the entire group. Where these meetings have been carefully planned and each staff member is expected to make some contribution toward the day's program, the time will be well spent and will result in a better quality of work.

#### WHAT CAN THE PUBLIC HEALTH SERVICE DO TO PROMOTE THE NURSING PROGRAM OF STATE HEALTH DEPARTMENTS?

For a number of years the Public Health Service has offered a consultation service to State health departments on environmental sanitation, milk control, malaria control, general health administration, and various other public health problems. The public health nursing consultation service is the most recent service which it has to offer to State and local health departments. The program for this service will be developed in accordance with the needs of the State health departments. It will be based upon past experience and current observations of public health nursing procedures in various sections of the country and upon careful and critical analyses of nursing practice in selected areas. The writer considers the Office of Studies of Public Health Methods of the Public Health Service the laboratory where present public health practices may be objectively scrutinized and evaluated for the purpose of determining their



effectiveness in meeting the health needs of the community. No two States may need exactly the same kind of service; but, in general, State health administrators may now look to the Public Health Service for the following types of service:

1. Assistance in making surveys of the nursing needs in State and county health departments, and in planning organization changes.
2. Assistance to State supervising nurses in planning and developing staff education programs for local nurses.
3. Assistance in the development of nursing record forms and in the preparation of instruction manuals.

In addition, an attempt will be made to keep an up-to-date file of information on current public health nursing practices as applied to State health departments, and to make this material available to State health administrators upon request.

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### COURT DECISION ON PUBLIC HEALTH

*Legislature held to have power to reduce State health officer's salary.*—(Alabama Supreme Court; *Hard, State Comptroller, v. State ex rel. Baker*, 154 So. 77; decided Mar. 15, 1934.) An Alabama statute provided in part that "The State board of health shall elect an executive officer to be known as the State health officer and shall fix his term of office and salary: *Provided*, That the latter shall not exceed \$7,500 per annum." The State committee of public health, in April 1930, elected Dr. J. N. Baker as State health officer for a term of 5 years at an annual salary of \$7,500. This action was ratified by the State board of health. In October 1932, by mutual agreement between the State health officer and the State board of health, the former's salary was reduced to \$5,250 per annum. At the time of the State health officer's election the State board of health entered into a contract to pay him the stipulated salary for a period of 5 years. By an act approved April 14, 1933, the salary of the State health officer was reduced and fixed at \$3,600 per annum. The State comptroller, following such statute, declined to issue a warrant for the State health officer's salary on the basis fixed by the State board of health, and a mandamus proceeding was brought by the health officer, upon approval or direction of the State committee of public health, acting for the State board of health, to test whether the health officer's salary was that fixed by the State board of health or that fixed by the legislative act.

On behalf of the State health officer it was insisted that his salary was fixed by contract made by the State through a duly authorized State agency; that the 1933 legislative act reducing his salary was in violation of the provision of the Federal Constitution that "No State



shall \* \* \* pass any \* \* \* law impairing the obligation of contracts" and in violation of sections 22 and 95 of the State constitution relating to the impairment of contracts; and that, therefore, the act, insofar as it affected the salary of the State health officer during his present term, was null and void.

In opposition to this it was insisted that the 1933 law in question was within the sovereign power of the State over State agencies of its own creation for governmental purposes; that the State board of health, vested by legislative act with the power to elect a State health officer, fix a term of office, and fix his salary within a statutory limit, was not vested with the power to make the term of office or the salary a matter of contract beyond the control of the legislature; and that legislative control was supreme over State agencies of the legislature's own creation and over disbursement of public funds of its own appropriation for a governmental purpose.

The conclusion reached by the supreme court was that the legislature had authority to reduce the State health officer's salary as it did, one portion of the opinion reading as follows:

Apart from any question of a legislative intent to confer on the board power to make the salary of the State health officer a matter of contract, our firm conviction is the State health officer, as before stated, is an integral part of the health department; may well be a member of the State medical association and, therefore, one of the body incorporated into the State board of health; that his position is what the official name imports and the law declares, viz., the executive officer of an executive agency, the State board of health, the active head of the health department, with great responsibilities imposed by law, and, therefore, his salary is under the entire control of the legislature. The legislature cannot contract away the sovereignty of the State over agencies of its own creation. This is the basic reason why salaries of statutory officers cannot be made a matter of contract beyond legislative control insofar as affected by the impairment clause.

### DEATHS DURING WEEK ENDED AUG. 25, 1934

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 25, 1934	Correspond- ing week, 1933
Data from 86 large cities of the United States:		
Total deaths.....	6,651	6,484
Deaths per 1,000 population, annual basis.....	9.3	9.0
Deaths under 1 year of age.....	482	456
Deaths under 1 year of age per 1,000 estimated live births.....	45	39
Deaths per 1,000 population, annual basis, first 34 weeks of year.....	11.7	11.1
Data from industrial insurance companies:		
Policies in force.....	67,580,638	67,750,927
Number of death claims.....	11,126	11,263
Death claims per 1,000 policies in force, annual rate.....	8.6	8.7
Death claims per 1,000 policies, first 34 weeks of year, annual rate.....	10.2	10.1

<sup>1</sup> Data for 81 cities.

# PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

## UNITED STATES

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Sept. 1, 1934, and Sept. 2, 1933

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 1, 1934, and Sept. 2, 1933*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933
<b>New England States:</b>								
Maine.....						3	0	0
New Hampshire.....						2	1	0
Vermont.....		1					0	0
Massachusetts.....	13	12			10	31	1	3
Rhode Island.....		1			7		0	0
Connecticut.....		1	1	2	10	7	0	0
<b>Middle Atlantic States:</b>								
New York.....	14	20	12	11	19	39	2	2
New Jersey.....	7	3	14	2	16	15	1	1
Pennsylvania.....	19	39			93	38	3	7
<b>East North Central States:</b>								
Ohio.....	22	24	19	28	39	16	4	1
Indiana.....	9	14	12	26		3	2	1
Illinois.....	16	11	19		48	13	8	2
Michigan.....	9	14			19	8	4	1
Wisconsin.....	7	1	22	19	41	11	1	0
<b>West North Central States:</b>								
Minnesota.....	5	8	1	1	20	4	0	0
Iowa.....	4	10			1		0	0
Missouri.....	26	18	14		10	15	2	0
North Dakota.....	3	13		3	10	8	1	0
South Dakota.....	3	2			12		0	0
Nebraska.....	1	5					0	0
Kansas.....	10	9	2		8	5	0	1
<b>South Atlantic States:</b>								
Delaware.....	1	1	5	1	1	2	0	1
Maryland.....	6	3	9	7	2	4	0	1
District of Columbia.....	10	3	2			1	0	0
Virginia.....	27	28			15	9	0	3
West Virginia.....	8	33	37	12	15	10	0	2
North Carolina.....	29	62		7	11	13	0	0
South Carolina.....	3	8	76	92	1	44	0	0
Georgia.....	11	36				24	0	0
Florida.....	8	16			53	10	0	0

Footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers  
for weeks ended Sept. 1, 1934, and Sept. 2, 1933—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933
<b>East South Central States:</b>								
Kentucky.....	17	42			9		1	1
Tennessee.....	15	21	6	16	13	3	1	0
Alabama <sup>1</sup> .....	55	50	3	4	34	31	0	0
Mississippi <sup>1</sup> .....	18	28					0	0
<b>West South Central States:</b>								
Arkansas.....	2	17	3	1		40	1	0
Louisiana.....	21	17	4	8	9		0	1
Oklahoma <sup>1</sup> .....	2	20	3	5			0	0
Texas <sup>1</sup> .....	37	87	27	56	37	11	0	0
<b>Mountain States:</b>								
Montana.....	1	3		3	4	4	0	0
Idaho.....					1	1	1	0
Wyoming.....	1			1	2	1	0	0
Colorado.....	6	3			9	6	1	0
New Mexico.....	2	10	1			2	1	0
Arizona <sup>1</sup> .....	2		3	4	1		0	0
Utah <sup>1</sup> .....					2	4	0	0
<b>Pacific States:</b>								
Washington.....		3			6	5	0	0
Oregon.....	2	1	11	5	5	13	0	0
California.....	11	39	4	10	16	43	4	1
<b>Total.....</b>	<b>463</b>	<b>737</b>	<b>382</b>	<b>314</b>	<b>609</b>	<b>499</b>	<b>40</b>	<b>29</b>

Division and State	Polio myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933
<b>New England States:</b>								
Maine.....	2	3	7	2	0	0	0	3
New Hampshire.....	0	0	5	1	0	0	0	0
Vermont.....	0	3	1	4	0	0	1	0
Massachusetts.....	2	32	31	64	0	0	8	4
Rhode Island.....	0	1	8	6	0	0	2	1
Connecticut.....	2	11	4	9	0	0	6	5
<b>Middle Atlantic States:</b>								
New York.....	14	164	58	72	0	0	12	52
New Jersey.....	4	14	18	21	0	0	6	6
Pennsylvania.....	13	50	75	111	0	0	25	48
<b>East North Central States:</b>								
Ohio.....	23	22	104	90	0	1	37	51
Indiana.....	2	4	16	22	0	0	16	14
Illinois <sup>1</sup> .....	17	14	101	83	0	1	59	40
Michigan.....	26	3	54	35	2	0	16	22
Wisconsin.....	8	1	13	22	3	5	5	0
<b>West North Central States:</b>								
Minnesota.....	8	31	11	20	1	0	3	3
Iowa <sup>1</sup> .....	2	3	11	9	0	0	12	5
Missouri.....	0	1	24	17	0	0	35	12
North Dakota.....	2	10	11	4	0	0	0	3
South Dakota.....	2	1	7	1	0	0	2	4
Nebraska.....	0	0	2	1	0	0	1	0
Kansas.....	4	5	15	28	0	1	12	14
<b>South Atlantic States:</b>								
Delaware.....	0	0	4	3	0	0	1	1
Maryland <sup>1</sup> .....	0	2	14	17	0	0	11	27
District of Columbia.....	0	0	4	2	0	0	1	1
Virginia.....	6	3	22	25	0	0	37	42
West Virginia.....	7	3	21	42	0	0	39	57
North Carolina <sup>1</sup> .....	3	1	35	70	0	0	16	39
South Carolina <sup>1</sup> .....	0	1	2	3	0	0	8	20
Georgia <sup>1</sup> .....	1	1	4	4	0	1	34	53
Florida.....	0	0	2	1	0	0	3	2

Footnote at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 1, 1934, and Sept. 2, 1933—Continued*

Division and State	Polkomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933	Week ended Sept. 1, 1934	Week ended Sept. 2, 1933
<b>East South Central States:</b>								
Kentucky.....	4	1	20	62	0	0	44	52
Tennessee.....	1	7	11	42	1	0	45	46
Alabama <sup>1</sup> .....	4	1	11	18	0	0	18	26
Mississippi <sup>2</sup> .....	0	0	12	7	0	0	10	10
<b>West South Central States:</b>								
Arkansas.....	1	0	2	7	0	2	8	16
Louisiana.....	0	1	10	12	0	0	14	21
Oklahoma <sup>3</sup> .....	0	0	6	4	0	0	26	17
Texas <sup>4</sup> .....	3	1	17	43	1	2	27	41
<b>Mountain States:</b>								
Montana.....	57	0	2	6	1	0	6	1
Idaho.....	7	0	3	3	0	0	1	3
Wyoming.....	0	0	—	6	0	0	1	1
Colorado.....	2	0	11	12	1	1	21	15
New Mexico.....	0	1	1	2	0	0	7	15
Arizona <sup>5</sup> .....	11	0	3	2	0	3	8	5
Utah <sup>6</sup> .....	0	0	8	—	0	0	2	2
<b>Pacific States:</b>								
Washington.....	50	3	7	12	3	1	1	4
Oregon.....	1	0	6	11	0	2	7	5
California.....	44	2	48	54	0	3	10	8
<b>Total.....</b>	<b>333</b>	<b>401</b>	<b>862</b>	<b>1,089</b>	<b>13</b>	<b>23</b>	<b>684</b>	<b>806</b>

<sup>1</sup> New York: Influenza, New York City only; typhoid fever, exclusive of New York City.

<sup>2</sup> Typhus fever, week ended Sept. 1, 1934, 47 cases, as follows: Illinois, 4; South Carolina, 3; Georgia, 9; Alabama, 12; Texas, 19.

<sup>3</sup> Week ended earlier than Saturday.

<sup>4</sup> Rocky Mountain spotted fever, week ended Sept. 1, 1934, 5 cases, as follows: Iowa, 2; Maryland, 1; North Carolina, 2.

<sup>5</sup> Exclusive of Oklahoma City and Tulsa.

### SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Infl- uenza	Malaria	Measles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<b>July 1934</b>										
California.....	5	136	55	10	677	8	755	370	4	41
Colorado.....	3	21	—	—	408	—	4	66	1	29
Missouri.....	5	75	26	274	190	—	2	95	3	215
Puerto Rico.....	—	57	56	1,947	45	—	0	—	0	54
<b>August 1934</b>										
Delaware.....	—	2	7	2	5	—	2	10	0	6
Indiana.....	3	41	51	4	33	—	6	69	5	112

July 1934		July 1934		July 1934	
Actinomycesis:	Cases	Dysentery:	Cases	German measles:	Cases
California.....	1	California (amoebic).....	16	California.....	130
Chicken pox:		California (bacillary).....	18	Granuloma, coccidioides:	
California.....	268	Colorado.....	1	California.....	1
Colorado.....	41	Missouri.....	110	Impetigo contagiosa:	
Missouri.....	31	Puerto Rico.....	107	Colorado.....	1
Puerto Rico.....	52	Food poisoning:		Leprosy:	
Dengue:		California.....	20	California.....	1
California.....	1			Puerto Rico.....	1

July 1934		July 1934		August 1934	
Lethargic encephalitis:	Cases	Tetanus:	Cases	Chicken pox:	Cases
California.....	3	California.....	5	Indiana.....	5
Missouri.....	8	Puerto Rico.....	13	Lethargic encephalitis:	
Mumps:		Tetanus, infantile:		Delaware.....	1
California.....	314	Puerto Rico.....	12	Indiana.....	2
Colorado.....	75	Trachoma:		Mumps:	
Missouri.....	53	California.....	4	Delaware.....	3
Puerto Rico.....	46	Trichinosis:		Indiana.....	3
Ophthalmia neonatorum:		California.....	3	Rabies in animals:	
California.....	1	Tularaemia:		Indiana.....	21
Puerto Rico.....	5	California.....	4	Rocky Mountain spotted fever:	
Paratyphoid fever:		Colorado.....	1	Delaware.....	1
California.....	3	Typhus fever:		Undulant fever:	
Puerto Rico.....	1	California.....	1	Indiana.....	3
Puerperal septicemia:		Undulant fever:		Whooping cough:	
Puerto Rico.....	12	California.....	11	Delaware.....	33
Rabies in animals:		Missouri.....	8	Indiana.....	130
California.....	76	Vincent's infection:			
Missouri.....	6	Colorado.....	1		
Relapsing fever:		Whooping cough:			
California.....	4	California.....	723		
Septic sore throat:		Colorado.....	166		
California.....	9	Missouri.....	488		
Colorado.....	1	Puerto Rico.....	225		
Missouri.....	45				

### EPIDEMIC ENCEPHALITIS IN CENTRAL STATES

Reports of epidemic encephalitis have been received from several States. Illinois reported 85 cases from August 1 to 29. (See Public Health Reports September 7, 1934, p. 1067.) On September 1 Indiana reported 15 to 20 cases, and on September 3 Kentucky reported 23 cases. Cases have also been reported in Ohio.

### DENGUE IN FLORIDA

The number of new cases of dengue reported in Miami, Fla., for the week ended September 1, 1934, was 25 percent less than the number reported for the preceding week. Conditions were said to be greatly improved. It was estimated that there were 3,000 cases in the city and vicinity on September 1.

### WEEKLY REPORTS FROM CITIES

*City reports for week ended Aug. 25, 1934*

[This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.]

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland.....	0		0	0	0	1	0	0	4	4	7
New Hampshire:											
Concord.....	0		0	0	0	0	0	0	1	0	9
Manchester.....	0			0		0	0		0	0	8
Nashua.....	0			0		0	0		0	0	
Vermont:											
Barre.....	0		0	0	0	0	0	0	0	0	0
Burlington.....	0			0		0	0		0	0	3
Massachusetts:											
Boston.....	4		0	2	10	9	0	9	2	21	192
Fall River.....	2		0	0	0	1	0	0	0	7	15
Springfield.....	0		0	0	1	0	0	1	0	7	19
Worcester.....	2		0	0	6	3	0	0	0	17	41
Rhode Island:											
Pawtucket.....	0			0		0	0		0	0	11
Providence.....	0		0	1	1	3	0	0	1	22	43



## City reports for week ended Aug. 25, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Connecticut:											
Bridgeport	0		1	1	1	0	0	0	0	1	36
Hartford	0		0	0	1	1	0	0	1	2	84
New Haven	0		0	0	1	0	0	0	0	2	28
New York:											
Buffalo	0		0	3	0	4	0	5	0	36	108
New York	14	8	0	13	63	28	0	69	17	194	1,077
Rochester	1		0	1	2	7	0	0	1	1	49
Syracuse	0		0	1	2	2	0	0	0	26	32
New Jersey:											
Camden	1		0	0	2	2	0	0	0	4	22
Newark	0	2	0	6	0	1	0	7	0	28	70
Trenton	0		0	0	0	1	0	3	0	1	26
Pennsylvania:											
Philadelphia	3		3	3	16	10	0	25	5	123	399
Pittsburgh	4		0	4	6	7	0	4	2	22	117
Reading	0		0	0	0	0	0	0	0	23	16
Scranton	0		0	0		0	0		0	2	
Ohio:											
Cincinnati	0		0	0	5	1	0	5	1	1	85
Cleveland	0	7	1	6	7	13	0	9	3	32	135
Columbus	3		0	1	0	8	0	0	0	34	54
Toledo	1		0	0	2	8	0	10	0	17	60
Indiana:											
Fort Wayne	3		0	0	0	0	0	0	0	0	28
Indianapolis	3		0	0	8	1	0	1	3	9	
South Bend	0		0	1	0	0	0	0	0	6	7
Terre Haute	0		0	0	0	0	0	0	0	0	13
Illinois:											
Chicago	3		0	15	16	37	0	29	7	64	562
Springfield	2		0	0	0	0	0	0	0	2	21
Michigan:											
Detroit	5		0	3	5	15	0	19	6	73	222
Flint	2		0	0	4	0	1	0	1	5	25
Grand Rapids	0		0	1	0	2	0	0	0	4	26
Wisconsin:											
Kenosha	0		0	8	0	0	0	0	0	7	1
Milwaukee	0		0	15	3	7	0	1	0	34	67
Racine	0		0	0	0	0	0	0	0	9	12
Superior	0		0	0	1	0	0	0	0	1	8
Minnesota:											
Duluth	0		0	0	0	0	0	0	0	1	24
Minneapolis	2		0	1	0	3	0	1	0	3	67
St. Paul	0		0	0	4	1	0	1	1	10	49
Iowa:											
Davenport	0			0		0	0		0	0	
Des Moines	0		0	0		5	0		0	0	22
Sioux City	0		0	0		0	0		0	3	
Waterloo	0		0	0		0	0		1	1	
Missouri:											
Kansas City	1		0	0	4	2	0	3	0	1	82
St. Joseph	3		0	0	1	0	0	0	0	1	22
St. Louis	5		0	1	4	4	0	14	7	23	160
North Dakota:											
Fargo	0		0	0	1	0	0	0	0	24	5
Grand Forks	0		0	0		0	0		0	1	
South Dakota:											
Aberdeen	0		0			1	0		1	2	
Nebraska:											
Omaha	2		0	1	4	4	0	1	0	1	33
Kansas:											
Topeka	0		0	1	2	0	0	0	0	2	24
Wichita	0		0	0	3	2	0	1	1	3	25
Delaware:											
Wilmington	0		0	0	1	0	0	2	0	4	24
Maryland:											
Baltimore	1	3	0	2	5	7	0	13	3	53	191
Cumberland	0	1	0	0	2	0	0	0	0	0	16
Frederick	0		0	0		0	0		0	0	2
District of Columbia:											
Washington	5		0	0	0	7	0	11	0	17	112
Virginia:											
Lynchburg	0		0	4	0	0	0	0	1	0	13
Norfolk	0		0	0	2	0	0	1	0	0	29
Richmond	0		0	1	2	0	0	6	0	0	56
Roadsboro	2		0	0		2	0		0	1	19

## City reports for week ended Aug. 25, 1934—Continued

State and city	Diph- theria cases	Influenza		Mea- sles cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
West Virginia:											
Charleston	1		0	1	1	3	0	1	1	3	16
Huntington	1		0	0	0	0	0	1	0	0	
Wheeling	0		0	0	0	1	0	1	0	5	15
North Carolina:											
Raleigh	0		0	0	1	1	0	1	1	1	11
Wilmington	0		0	1	1	0	0	0	0	4	14
Winston-Salem	6		0	0	1	0	0	2	0	16	13
South Carolina:											
Charleston	0	2		0	0	0	0	3	0	0	31
Columbia			0	0	0			0			14
Greenville	0		0	0	1	0	0	0	0	1	8
Georgia:											
Atlanta	1	10	0	0	5	2	0	5	1	8	78
Brunswick	0		0	0	0	0	0	0	0	0	4
Savannah	0		0	0	0	0	0	3	0	0	33
Florida:											
Miami	2		0	2	1	0	0	1	0	2	34
Tampa	0		0	0	3	0	0	4	2	0	25
Kentucky:											
Ashland	1			0		0	0		2	0	
Lexington	1		0	1	1	0	0	1	0	0	15
Louisville	4		0	4	9	1	0	10	5	7	76
Tennessee:											
Memphis	0		0	0	2	0	0	5	4	9	63
Nashville	0		0	0	1	6	0	0	2	3	40
Alabama:											
Birmingham	0	1	1	2	0	1	0	2	1	0	52
Mobile	1		0	0	1	1	0	1	0	0	30
Montgomery	2			0		0	0	0	0	0	
Arkansas:											
Fort Smith	0			0		0	0		0	0	
Little Rock	1		0	0	3	0	0	3	0	0	7
Louisiana:											
New Orleans	10		0	0	8	0	0	13	11	0	156
Shreveport	0		0	0	1	0	0	2	0	2	31
Oklahoma:											
Oklahoma City	1		0	0	5	0	0	2	0	0	46
Texas:											
Dallas	4		0	1	2	2	0	1	0	1	61
Fort Worth	0		0	0	1	1	0	6	1	0	42
Galveston	0		0	0	1	0	0	1	0	0	14
Houston	5		0	0	5	0	0	8	0	0	70
San Antonio	0		0	0	0	1	0	9	0	0	52
Montana:											
Billings	0			0		0	0		0	0	6
Great Falls	0		0	0	1	1	0	0	0	0	9
Helena	0		0	0	0	0	0	0	0	0	4
Missoula	0		0	0	1	0	0	1	0	0	6
Idaho:											
Boise	0		0	0	0	0	0	0	0	0	4
Colorado:											
Denver	2	21	0	0	2	7	0	1	0	11	71
Pueblo	0					0	0		0	0	9
New Mexico:											
Albuquerque	0	1	0	0	0	0	0	3	0	0	8
Utah:											
Salt Lake City	0		0	4	0	2	0	1	1	46	26
Nevada:											
Reno	0		0	0	0	0	0	0	0	0	1
Washington:											
Seattle	0		0	0	5	3	0	7	1	10	63
Spokane	0	1	1	2	1	0	0	0	0	7	31
Tacoma	0		0	1	0	1	0	0	0	2	27
Oregon:											
Portland	0		0	1	0	2	0	1	0	2	65
Salem	0	0		0		0	0		0	0	
California:											
Los Angeles	8	3	0	1	5	20	0	24	5	19	251
Sacramento	0		0	2	5	2	0	2	0	2	28
San Francisco	0	1	1	10	6	10	0	3	1	7	150

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Vermont:				Maryland:			
Burlington.....	0	0	1	Baltimore.....	0	0	1
Massachusetts:				District of Columbia:			
Boston.....	0	0	1	Washington.....	1	0	1
Connecticut:				Kentucky:			
Bridgeport.....	1	0	0	Louisville.....	0	1	0
New York:				Montana:			
New York.....	2	3	3	Great Falls.....	0	0	5
Pennsylvania:				Helena.....	0	0	19
Pittsburgh.....	2	0	1	Missoula.....	0	0	3
Ohio:				Utah:			
Cincinnati.....	2	1	2	Salt Lake City.....	0	0	1
Cleveland.....	0	0	6	Washington:			
Illinois:				Seattle.....	0	0	2
Chicago.....	4	0	15	Spokane.....	0	0	17
Springfield.....	0	0	1	Oregon:			
Michigan:				Portland.....	0	0	1
Detroit.....	2	0	7	California:			
Grand Rapids.....	0	0	1	Los Angeles.....	0	0	21
Wisconsin:				Sacramento.....	0	0	1
Milwaukee.....	0	0	2	San Francisco.....	0	0	1
Delaware:							
Wilmington.....	0	0	1				

*Dengue*.—Cases: Savannah, 1; Miami, 161; Birmingham, 5.

*Lethargic encephalitis*.—Cases: New York, 1; Philadelphia, 1; Cleveland, 1; Chicago, 6; Minneapolis, 1; St. Louis, 1; Fort Worth, 1.

*Pellagra*.—Cases: Atlanta, 2; Miami, 2; New Orleans, 1; Dallas, 1; Albuquerque, 1; San Francisco, 2.

*Rabies in man*.—Deaths: Seattle, 1.

*Typhus fever*.—Cases: Charleston, S.C., 2; Atlanta, 1; Savannah, 12; Dallas, 5. Deaths: Charleston, S.C., 1.

## FOREIGN AND INSULAR

### ARGENTINA

*Buenos Aires—Poliomyelitis.*—A report dated August 3, 1934, states that more than 100 cases of poliomyelitis have been reported during the last few months in Buenos Aires, Argentina.

### CANADA

*Ontario Province—Communicable diseases—4 weeks ended July 28, 1934.*—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the 4 weeks ended July 28, 1934, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	2	1	Poliomyelitis.....	5	—
Chicken pox.....	538	—	Puerperal septicemia.....	—	1
Diphtheria.....	15	1	Scarlet fever.....	197	3
Erysipelas.....	5	—	Septic sore throat.....	2	2
German measles.....	7	—	Syphilis.....	153	—
Gonorrhea.....	143	—	Tetanus.....	1	—
Influenza.....	7	2	Trachoma.....	1	—
Lethargic encephalitis.....	1	—	Trench mouth.....	3	—
Measles.....	176	—	Tuberculosis.....	99	20
Mumps.....	141	—	Typhoid fever.....	27	—
Paratyphoid fever.....	6	—	Undulant fever.....	6	—
Pneumonia.....	—	63	Whooping cough.....	520	5

### DENMARK

*Communicable diseases—April–June 1934.*—During the months of April, May, and June, 1934, cases of certain communicable diseases were reported in Denmark, as follows:

Disease	April	May	June
Cerebrospinal meningitis.....	7	5	4
Chicken pox.....	88	50	19
Diphtheria and croup.....	87	123	72
Dysentery.....	27	21	85
Epidemic encephalitis.....	10	10	4
Erysipelas.....	255	252	267
German measles.....	12	6	16
Gonorrhea.....	717	775	788
Influenza.....	3,506	2,964	2,305
Malaria.....	6	10	10
Measles.....	142	74	187
Mumps.....	992	760	500
Paratyphoid fever.....	5	9	12
Poliomyelitis.....	11	11	15
Puerperal fever.....	18	14	15
Scabies.....	634	606	494
Scarlet fever.....	208	278	280
Syphilis.....	62	59	80
Tetanus, neonatorum.....	—	3	2
Tetanus, traumatic.....	2	3	—
Typhoid fever.....	—	5	2
Undulant fever (Bact. abort. Bang).....	63	58	84
Whooping cough.....	381	1,034	1,317

## GREAT BRITAIN

*Scotland—Vital statistics—Quarter ended June 30, 1934.*—The Registrar General of Scotland has published the following vital statistics for Scotland for the second quarter ended June 30, 1934:

Population.....	4, 936, 000	Deaths from:—Continued.	
Births.....	23, 239	Erysipelas.....	55
Birth rate per 1,000 population.....	18. 9	Heart disease.....	2, 971
Deaths.....	16, 724	Influenza.....	103
Death rate per 1,000 population.....	13. 6	Lethargic encephalitis.....	25
Deaths under 1 year.....	1, 802	Measles.....	738
Deaths under 1 year per 1,000 live births.....	78	Nephritis, acute.....	55
Marriages.....	8, 847	Nephritis, chronic.....	330
Deaths from:		Nephritis, unspecified.....	115
Appendicitis.....	121	Paratyphoid fever.....	1
Bronchitis.....	658	Pneumonia (lobar).....	345
Broncho pneumonia.....	519	Pneumonia, unspecified.....	181
Cancer.....	1, 935	Poliomyelitis.....	1
Cerebrospinal fever.....	40	Puerperal sepsis.....	60
Diabetes.....	185	Scarlet fever.....	102
Diarrhea and enteritis (under 2 years).....	138	Syphilis.....	24
Diphtheria.....	155	Tetanus.....	1
Dysentery.....	5	Tuberculosis.....	1, 045
		Typhoid fever.....	5
		Typhus fever.....	1
		Whooping cough.....	131

## POLAND

*Typhus fever.*—A report dated July 14, 1934, states that for the past 4 years typhus fever has been reported in Poland, as follows:

Year	Cases	Deaths
1930.....	1, 640	112
1931.....	2, 154	144
1932.....	2, 424	185
1933.....	3, 454	200

NOTE.—In 1934, up to the 1st of July, 3,400 cases of typhus fever were reported.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Aug. 31, 1934, pp. 1037-1049. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Sept. 28, 1934, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

## PLAGUE

*India—Moulmein.*—A fatal case of plague was reported in Moulmein (port) for the week ended August 18, 1934.

## YELLOW FEVER

*Niger Territory—Zinder.*—On August 16, 1934, 1 case of yellow fever with 1 death was reported in Zinder, Niger Territory.